

FEBRUARY

By Ken Solomon

"Freezing"

The major cause of pheasant winter mortality is not starvation. It is freezing. The pheasant's physiological processes can produce only so much heat. As temperatures drop, more and more body heat is lost to the surrounding air. At some temperature, called the "lower critical temperature," more heat is lost than can be produced, and the bird freezes. Other than being frozen, the bird is good body condition. Whether a well fed pheasant freezes at -20°F or 0°F is unknown, but -50°F would freeze any pheasant. It is not uncommon to have numerous days of below zero temperatures (and even lower windchills) in the northern states.

So why don't all pheasants freeze each winter? They would if it were not for one factor, winter habitat. The insulating effect of habitat moderates windchills, thus providing a warmer and less energy-demanding microclimate for the birds. With the existing winter habitat in your area, only 30 to 50 percent of your birds will survive this winter. If you establish more winter habitat, more birds will survive.

"Daily Activities"

A pheasant's typical winter day goes like this. If available, the pheasant will spend its nights in grassy cover or wetlands (called roosting cover). An hour or so before sunrise he will leave the grass and head for shrub cover for protection from aerial predators (loafing cover). Here he will be joined by other roosters before venturing out to feed. About 30 minutes before sunrise, he and friends move out to feed in harvested grain fields or, better yet, unharvested food plots (feeding cover). Pheasants prefer to feed in areas within 300 yards of the loafing cover, but will venture longer distances to find food. Unfortunately, longer trips to feeding areas require more energy to be wasted finding the food. The pheasant will make numerous trips between the shrub and food cover all day. He will use the solar-collector properties of good loafing cover to bask in the sun, avoid predators, and moderate his energy needs. His last feeding trip may last up to an hour after sunset, as he prepares for the long 16-hour night. Depending on how late it is, he will either visit the loafing cover once more or go directly to bed in the roosting cover.

"Grass Cover and Shrub Cover"

Pheasants will spend their winter nights roosting in grass cover or wetlands. The dead grass of roosting cover makes a nice insulated bed which protects the birds from the wind. While the temperature near their beds may be 0°F, the 20 mph wind three feet above their heads produces a -39°F windchill. To survive the 0°F in the grass, the pheasants must use 22.42 kcal of energy each hour. Without the grass cover, the pheasants need 28.01 kcal each hour to survive the -39°F. That is an increased metabolic need of 25 percent without the grass cover. It is difficult enough trying to survive a 16-hour night without also having to burn 25 percent more energy to do it.

The use of shelterbelts and woody draws as loafing cover provides even greater energy benefits than roosting cover. Not only does a well designed tree belt negate the energy costs of windchill, it produces a warmer temperature inside the belt than outside the belt. With the still air inside a belt and the solar collection ability of dark colored conifers, the temperature within a belt can be 5°F warmer than the surrounding air. In such a belt, pheasants can survive with 3 percent less energy.

"Food Plots"

Winter habitat includes grass cover for roosting at night, trees and shrubs to loaf in during the day, and food. Ideally, these should be located next to each other, or at most one quarter mile apart. A Kansas study found that food plots left for bobwhite quail increased the quail's energy intake and helped maintain a higher body weight and fat content. The better body condition of quail within 600 yards of the food plot enables them to survive a blizzard six days longer than quail farther than 600 yards from the plots. We can assume the same is true for pheasants.

Changes in farming practices and farm machinery over the last 40 years have greatly decreased the amount of waste grain in harvested fields. Sure there is still some grain to be had by pheasants, but it lays on the ground subject to rotting, subject to disking, subject to snow or ice cover, and more available to rodents. Standing plots of corn, sunflower, or grain sorghum, provide food above the snow and ice. A two acre food plot in each 160 acres would increase the winter survival of hens, and help them produce more numerous and healthy eggs next spring.

"Looking To Spring"

With the strong winds, snow and cold temperatures of January and February, the big, strong, bold, and independent rooster must use all his cunning and resources to ensure survival. While struggling one day to the next, he already has his eye on spring. By mid-February his testes begin enlarging, and motile sperm can be found in all parts of his reproductive system. Growth of the testes is slower and begins one month earlier than growth of the hen's ovary. Spring is coming.

"Pheasants Impact Other Game Birds?"

Do pheasants impact other game birds? Managers have expressed concern that pheasants might harm other farmland and prairie game birds. There is circumstantial evidence that pheasants can impact other bird populations, but the jury is still deliberating. Gray partridge, prairie-chickens, and other species may be affected through food competition, habitat competition, nest parasitism, diseases, and behavior (Kimmel 88).

Food Competition - Generally, in Mother Nature's plan, birds of different sizes eat foods of different sizes. And birds of same size and food requirements occupy different geographic areas, so as not to compete for the same foods. Not always true with pheasants. Diets of the larger pheasant overlap those of the smaller gray partridge, and may be a competitive factor during winter. The same sized prairie-chicken typifies grassland prairies, while the pheasant is found in farmland habits. In areas where the two populations merge though, food competition exists. It is doubtful that one bird out competes the

other. Instead, both may be equally limited by the limited food supply.

"Habitat Competition"

Do pheasants compete with other game birds for habitat? In areas where game bird ranges overlap; there is probably competition for limited resources. But is the competition life threatening? In 1945, Wisconsin claimed competition when noting that bobwhite quail numbers were lower in winter habitat when pheasants were present. Did this increase the quails' mortality rate, or did they just move to other areas? Other reports note "possible competition" with gray partridge for roosting, feeding, and nesting habitat, and for insects. A Minnesota report hit the nail more squarely on the head when it stated that partridge/pheasant competition occurred where habitat was limited. Adequate habitat lessens competition.

The potential for habitat competition with prairie grouse is even more unclear. While Nebraska reported competition for food, another noted that while the two do rely on the same foods, competition is not significant. Central Europe did note a "significant retreat" of black grouse because of "possible" competition with pheasants.

"Shelterbelt Benefits"

January and February are the coldest months of the year. Do your pheasants have good woody cover to find shelter from the windchill? In the Midwest and west, shelterbelts are warmth for the birds and for you in winter. Research has shown that 92 different bird species use shelterbelt habitat in the summer, and have documented nest densities as high as 17 nests/acre. In areas of intensive agriculture when habitat is scarce, shelterbelts can play an important role during spring and fall migration of song birds. A good belt provides loafing, feeding, roosting and escape cover for pheasants.

Shelterbelts can cut winter heating bills as much as 30%. This can be substantial savings to the farmer with today's rising energy costs. Shelterbelts reduce windchills for both the birds and your livestock. Cattle and pheasants require less feed to maintain body weight. Well placed shelterbelts can efficiently spread snow across fields improving spring soil moisture, and can effectively protect buildings and roadways from drifting snow (Nebraska's living snow fences). Trees can conserve soil by slowing wind erosion. One tree removes 13 pounds of CO₂ a year.

"Shelterbelt Design"

Do your pheasants have good woody cover to find shelter from the windchill? To be of benefit, shelterbelts must be designed well. Four design factors are snow catch, height of the lift trees, number of evergreen rows, and belt width. A good belt will stop all drifting snow without burying the inner rows of trees. This can be done with 2 dense shrub rows 30 to 50 feet windward of the belt. The 30 to 50 feet can be used for a food plot. Tall trees can reduce wind speeds for 20 times their height to provide protection for pheasants and farmstead. If the purpose of your belt is primarily wildlife protection, consider not planting any tall deciduous trees in which hawks and owls could perch.

The inner portion of the belt should contain 4 rows of cedars to slow breezes within the belt and to provide a little solar collection. On sunny winter days, the temperature around the dark colored cedars is warmer than surrounding air, thus saving some of the hen's fat reserves. Width? Depends on your winters! The frigid blowing snows of the Dakotas require a belt of 12 to 15 rows, while 4 rows are adequate in temperate Kansas.

"Establishing a Shelterbelt"

Do your pheasants have good woody cover to find shelter from the windchill? How you plant the shelterbelt will determine your success and the pheasants' survival. When selecting shrub and tree species suitable for your planting; contact a local wildlife or forestry professional. Plants must be matched with local conditions, including soil types, specific site problems, and climate. Select at least 6 and preferably 8 tree and shrub species. Remember, a shelterbelt with an array of plant species will attract a greater variety of wildlife and have a better chance of surviving a wide range of environmental conditions.

One of the most important factors in establishing a shelterbelt is proper seedbed preparation. Summer fallowing or maintaining the land in a cultivated crop, the year before will help produce a weed free, loose bed. Grass or existing alfalfa fields are poor choices unless the soil has been plowed and disked at least one year prior to planting. Just prior to planting, apply a pre-emergent herbicide specifically approved for the tree species to be planted.

"Shelterbelt Maintenance"

Do your pheasants have good woody cover to find shelter from the windchill? They will if you maintain your new shelterbelt properly. Weed control! The most important weed to control is grass. More specifically, sod forming grasses like bluegrass, brome or fescue must be eliminated. Good control of grasses and other weeds can cut the time it takes seedlings to reach maturity by 50%. Control for how long? Depends on your available moisture. The less moisture your area receives, the longer you must cultivate. Minimum for most trees is 4 years, and for shrubs 2 years. For dry land sites in the West and Great Plains area this will mean keeping the entire area between tree rows weed-free. In the Midwest and East, this means a four-foot weed-free zone around the plants.

Mowing in the fall helps to reduce cover for rodents which may girdle or cut off trees. Mulching can control weeds and reduce moisture loss, but it can be expensive and labor intensive. New effective mulch is fiber matting, which protects more than 5 years. Herbicides control weeds effectively when applied in proper amounts at the right time. Or as a farmer friend said, "Mechanical cultivation uses no toxic chemicals and is cheaper than other methods."